

PATENT CLAIMS

1. Water-dilutable binders containing reaction products **ABC** of epoxy resins **A**, compounds **B** having such functional groups as a result of which they are capable of reacting with compounds with epoxy groups, selected from compounds **B1** with at least one primary or secondary amino group, compounds **B2** with acid groups and compounds **B3** with phenolic hydroxyl groups, and fatty acid amides **C** with at least one amide group and at least one amino group obtained by reacting fatty acids **C1** and amines **C2** with at least one secondary and at least one primary amino group.
2. The water-dilutable binders according to claim 1 characterised in that the fatty acid amides **C** contain at least two amide groups and at least one secondary amino group.
3. The water-dilutable binders according to claim 1 characterised in that the fatty acids **C1** have 6 to 40 carbon atoms and at least one olefinic double bond.
4. The water-dilutable binders according to claim 1 characterised in that the amine **C2** are linear, branched or cyclic aliphatic amines with 4 to 20 carbon atoms and at least one primary and at least one secondary amino group selected from the group consisting of amines **C21** with a primary amino group and a secondary amino group and amines **C22** with at least two primary amino groups.
5. The water-dilutable binders according to claim 1 characterised in that aliphatic or aromatic epoxy compounds with at least one epoxy group per molecule are used as compounds **A**, the monoepoxides **A1** being selected from the group consisting of glycidyl ethers of aliphatic monohydric alcohols with 4 to 40 carbon atoms and glycidyl esters of aliphatic monocarboxylic acids with 5 to 20 carbon atoms and the diepoxides **A2** are selected from the group consisting of glycidyl ethers of dihydric aliphatic alcohols with 4 to 20 carbon atoms, diglycidyl ethers of dihydroxy polyoxyalkylenes such as polyethylene glycol and polypropylene glycol, diglycidyl esters of dicarboxylic acids with 2 to 40 carbon atoms, and diglycidyl ethers of divalent phenols.

6. The water-dilutable binders according to claim 1 characterised in that, in the compounds **B1**, the amino groups are bound to aliphatic carbon atoms, that the compounds **B1** are linear, branched or cyclic and have 2 to 40 carbon atoms, wherein compounds **B1** are selected from the group consisting of compounds **B11** which, apart from at least one secondary or primary amino group, have at least one hydroxyl group, compounds **B12** which have at least one primary and at least one tertiary amino group, and compounds **B13** which have at least two primary amino groups and at least one secondary amino group.
7. The water-dilutable binders according to claim 1 characterised in that the compounds **B2** are aliphatic linear, branched or cyclic monocarboxylic acids with 2 to 40 carbon atoms having at least one olefinic double bond.
8. The water-dilutable binders according to claim 1 characterised in that the compounds **B3** are selected from the group consisting of monophenols and diphenols.
9. A process for the preparation of water-dilutable binders according to claim 1 characterised in that
 - in the first step, fatty acid amides **C** are synthesised by reacting the fatty acids **C1** with the amines **C2**, which fatty acid amides **C** have at least one secondary and/or primary amino group,
 - these amino-functional acid amides **C** are subsequently mixed, in the second step, with at least two of the compounds **B**, where compounds **B** from at least two different classes of **B1**, **B2** and **B3** are used,
 - subsequently, in step three, a first portion of an epoxide **A** is added and reacted until no more free epoxy groups are detectable,
 - subsequently, this reaction product is dispersed in water to which a neutralising agent had previously been added and the dispersion formed is reacted in the fourth step with a further portion of a diepoxide **A2** and reacted further until all epoxy groups are completely consumed.

10. The process according to claim 9 characterised in that, following the third step, at least one further compound **B** and a second portion of an epoxide **A** are added and the reaction mixture is reacted until no more free epoxy groups are detectable.

5 11. The process according to claim 10 characterised in that the epoxide added as second portion is a diepoxide **A2**.

12. A method of use of the water-dilutable binders according to claim 1 comprising coating metals, mineral substrates, plastics, paper and board.

10

13. A method of use of the water-dilutable binders according to claim 1 comprising combining the binders of claim 1 with hardeners selected from the group consisting of blocked and non-blocked multifunctional isocyanates and aminoplast resins to formulate coatings.

15
